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P.O. Box 2999, Station D
55 Metcalfe Street, Suite 900
Ottawa, Canada K1P 5Y6

Tel.: (613) 232-2486
Fax: (613) 232-8440

To Fax no.: (571) 273-8300

Page 1 of: 35

Attention: MAIL STOP AF
Group Art Unit 2617
Examiner: Emem O. STEVEN

From: SMART & BIGGAR

Your file no.: 10/682,092

Date: January 7, 2008

Reply to Ottawa file no.: 77682-215 /jas

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TRANSMITTAL OF APPEAL BRIEF (Large Entity)	Docket No. 77682-215/jas

In Re Application Of: **STEER, David**

Application No.	Filing Date	Examiner	Customer No.	Group Art Unit	Confirmation No.
10/682,092	October 10, 2003	STEVEN, Emem O.	07380	2617	9212

Invention: **METHOD AND APPARATUS FOR ENHANCING LINK RANGE IN A WIRELESS NETWORK USING A SELF-CONFIGURABLE ANTENNA**

COMMISSIONER FOR PATENTS:

Transmitted herewith in triplicate is the Appeal Brief in this application, with respect to the Notice of Appeal filed on **November 5, 2007**

The fee for filing this Appeal Brief is: **$510.00**

☐ A check in the amount of the fee is enclosed.

☐ The Director has already been authorized to charge fees in this application to a Deposit Account.

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Dated: **January 7, 2008**

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE HONORABLE BOARD OF PATENT APPEALS

In re application of:)
)
David Steer)
) Group Art Unit: 2617
Serial No.: 10/682,092)
) Examiner: Steven, Emem O.
Filed: October 10, 2003)
) Attorney Docket: 77682-215
For: METHOD AND APPARATUS FOR)
ENHANCING LINK RANGE IN A)
WIRELESS NETWORK USING A SELF-)
CONFIGURABLE ANTENNA)

APPEAL BRIEF UNDER 37 C.F.R. 41.37

The Assistant Commissioner of Patents
Washington, D.C. 20231
U.S.A.

Dear Sir or Madam:

The following is the Appellant's Brief, submitted under the provisions of 37 C.F.R. 41.37. The fee of $510 that is required by 37 C.F.R. 41.20(b)(2) is included with this submission.

Real Party in Interest

The real party in interest is the assignee of record, i.e. Nortel Networks Limited, current address 2351 Boulevard Alfred-Nobel, St. Laurent, Quebec, Canada, H4S 2A9.

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Related Appeals and Interferences

There are no related appeals or interferences that will directly affect, be directly affected by or have a bearing on the present appeal.

Status of Claims

Claims 1 to 9 and 32 to 38 are withdrawn from consideration.

Claims 10 to 31 are currently pending in the application.

Claims 10, 11, 13, 16, and 19 to 21 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Deutsche Publication No. DE 19653443 A1 (Gerhauser) in view of International Publication No. WO 95/13668 (Pennock *et al.*) and further in view of U.S. Patent No. 5,341,375 (Buchholz *et al.*).

Claims 12, 14, 15 and 17 to 25 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Gerhauser in view of Pennock *et al.* and Buchholz *et al.* and in view of various other references.

Claims 26 to 31 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Pennock *et al.* in view of Buchholz *et al.*

The present appeal is directed to claims 10 to 31.

Status of Amendments

No amendments were proposed subsequent to the Final Office Action dated June 4, 2007.

Summary of Claimed Subject Matter

The invention is embodied in the three appealed independent claims, namely claims 10, 26, and 29.

Claim 10 is directed to "a wireless network node for providing transit of data with other wireless network nodes in a wireless network", an example of which is illustrated in Figure 1 as WNN 20, 22, 24, 26 and 28 and described in detail on page 12, lines 5 to 25.

The wireless network node comprises "at least one transit antenna to provide data transmission between at least one other wireless network node in the wireless network and the wireless network node". An example of two transit antennas is illustrated in Figure 2 as reference characters 45 and 47. Further detail regarding the transit link antennas is provided on page 16, lines 4-6.

The wireless network node comprises "an auxiliary transit antenna port to which an auxiliary transit antenna can be coupled". An example of an auxiliary transit antenna port is illustrated in Figure 4A as reference character 407. Further detail regarding the auxiliary transit antenna port is provided on page 24, line 24 to page 25, line 15. An example of an auxiliary transit antenna is illustrated in Figure 4A as reference character 420. Further detail regarding the auxiliary transit antenna is provided on page 22, lines 23-31 and page 23, line 30 to page 24, line 18.

The wireless network node comprises "an antenna detector adapted to detect whether or not an auxiliary transit antenna is coupled to the auxiliary transit antenna port". An example of an antenna detector is illustrated in Figure 5 by reference characters 510 and 520. Two different types of mechanisms are described on page 26, lines 19 to 24 and page 27 line 21 to page 29 line 5 for automatically detecting the connection of auxiliary antenna. Other methods are also described on page 26, line 25 to page 27, line 20.

Claim 10 also recites that "the at least one transit antenna are available to establish one or more transit links". This is described in greater detail on page 13, lines 25-27 and page 16, lines 4-21.

The claim further recites, "upon detection that the auxiliary transit antenna is not coupled to the auxiliary transit antenna port, the wireless network node uses only the at least one transit antenna for communications". This is described in greater detail at page

30, lines 5-8 and lines 13-17. These particular portions of the specification describe that when the auxiliary transit antenna is not detected, it is either not added to a list of available antennas if it is not already on the list, or is removed from the list if it is on the list. In either case, if the auxiliary transit antenna is not on the list it cannot be selected for use and only the at least one transit antenna would be used for communications.

The claim further recites, "upon detection that the auxiliary transit antenna is coupled to the auxiliary transit antenna port, adding the auxiliary transit antenna to a list of available antennas adapted for at least one of transmitting and receiving wireless signals so that the auxiliary transit antenna can be included or ignored as appropriate for at least one of transmitting and receiving wireless signals through the auxiliary transit antenna coupled to the auxiliary transit antenna port". This is described in greater detail at page 20, lines 23-30.

Claim 26 is directed to "a method of operating a wireless network node having an auxiliary transit antenna port". An example of a wireless network node having an auxiliary transit antenna port is illustrated in Figure 4A, 4B and Figure 5 and described in detail on page 24, line 20 to page 26, line 6.

The method is recited to comprise a step of "determining whether or not an auxiliary transit antenna is coupled to the auxiliary transit antenna port". Such a step is illustrated in Figure 6 as reference character 6-3. A more detailed description is provided at page 30, lines 1-8.

The claim further recites a step that involves" upon determining that an auxiliary transit antenna is coupled to the auxiliary transit antenna port, adding the auxiliary transit antenna to a list of available antennas adapted for at least one of transmitting and receiving wireless signals so that the auxiliary transit antenna can be included or ignored as appropriate for at least one of transmitting and receiving wireless signals through the auxiliary transit antenna coupled to the auxiliary transit antenna port". Such a step is illustrated in Figure 6 as reference character 6-4. A more detailed description is provided at page 30, lines 9-12 and page 20, lines 23-30.

The claim further recites a step that involves "upon determining that an auxiliary transit antenna is not coupled to the auxiliary transit antenna port, removing the auxiliary transit antenna from a list of active antennas so that the auxiliary transit antenna will not be used". Such a step is illustrated in Figure 6 as reference character 6-5. A more detailed description is provided at page 30, lines 13-17.

Claim 29 is directed to "a controller for a wireless network node having an auxiliary transit antenna port". An example of a controller for a wireless network node having an auxiliary transit antenna port is illustrated in Figure 2 as reference character 44. Furthermore, at page 30, lines 27-31, the specification describes that a controller included in a wireless network node may implement the method described in Figure 6. The method of Figure 6 corresponds to the functionality of the controller recited in claim 29.

The controller is recited to have a function of "determining whether or not an auxiliary transit antenna is coupled to the auxiliary transit antenna port". Such functionality is illustrated in Figure 6, reference character 6-3. This is described in greater detail at page 30, lines 1-8.

The controller is recited to have a function of "upon determining that an auxiliary transit antenna is coupled to the auxiliary transit antenna port, adding the auxiliary transit antenna to a list of available antennas adapted for one of transmitting and receiving wireless signals so that the auxiliary transit antenna can be included or ignored as appropriate for one of transmitting and receiving wireless signals through the auxiliary transit antenna coupled to the auxiliary transit antenna port". Such functionality is illustrated in Figure 6, reference character 6-4. This is described in greater detail at page 30, lines 9-12 and page 20, lines 23-30.

The controller is recited to have a function of upon determining that an auxiliary transit antenna is not coupled to the auxiliary transit antenna port, removing the auxiliary transit antenna from a list of active antennas so that the auxiliary transit antenna will not be used. Such functionality is illustrated in Figure 6, reference character 6-5. This is described in greater detail at page 30, lines 13-17.

Grounds of Rejection to be Reviewed on Appeal

Claims 10, 11, 13, 16, and 19 to 21 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Deutsche Publication No. DE 19653443 A1 (Gerhauser) in view of International Publication No. WO 95/13668 (Pennock *et al.*) and further in view of U.S. Patent No. 5,341,375 (Buchholz *et al.*).

Claims 12 and 15 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Gerhauser in view of Pennock *et al.* and Buchholz *et al.* and further in view of International Publication No. WO 01/52357 (Kamphuis *et al.*).

Claim 14 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Gerhauser in view of Pennock *et al.* and Buchholz *et al.*.

Claims 17 to 25 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Gerhauser in view of Pennock *et al.* and Buchholz *et al.* and further in view of International Publication No. WO 03/017591 (Difonzo *et al.*).

Claims 26 to 31 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Pennock *et al.* in view of Buchholz *et al.*

Argument

The law on obviousness under 35 U.S.C. 103 was recently addressed in ***KSR Int'l v. Teleflex, Inc.**, No. 04-1350, slip op. at 14 (U.S., Apr. 30, 2007).* Following this, examination guidelines were released on October 10, 2007 in regards to determining obviousness under 35 U.S.C. 103. According to these guidelines, the framework for the objective analysis for determining obviousness under 35 U.S.C. 103 is stated in ***Graham v. John Deere Co.** 383 U.S. 1,148 USPQ 459 (1966).* Obviousness is a question of law based on underlying factual inquiries. The factual inquiries enunciated by the Court are as follows:

(1) Determining the scope and content of the prior art;

(2) Ascertaining the differences between the claimed invention and the prior art; and

(3) Resolving the level of ordinary skill in the pertinent art.

The Graham factors, including secondary considerations when present, are the controlling inquiries in any obviousness analysis. Once the findings of fact are articulated, Office personnel must provide an explanation to support an obviousness rejection under 35 U.S.C. 103. According to KSR, for the Patent Office to properly combine references in support of an obviousness rejection, the Patent Office must identify a reason why a person of ordinary skill in the art would have sought to combine the respective teachings of the applied references.

Applicant's analysis below demonstrates that the Examiner has failed to properly conform to the aforementioned guidelines for a finding of obviousness under 35 U.S.C. 103.

Rejection Under 35 U.S.C. 103(a) over Gerhauser in view of Pennock *et al.* and further in view of Buchholz *et al.*

Claims 10, 11, 13, 16, and 19 to 21

The Examiner has stated that claims 10, 11, 13, 16, and 19 to 21 are unpatentable under 35 U.S.C. 103(a) over Deutsche Publication No. DE 19653443 A1 (Gerhauser) in view of International Publication No. WO 95/13668 (Pennock *et al.*) and further in view of U.S. Patent No. 5,341,375 (Buchholz *et al.*).

Missing Elements

The following is a discussion of why the cited references do not disclose all the elements of the rejected claims. While it may be considered that "the mere existence of differences between prior art and an invention does not establish the invention's nonobviousness", Office personnel must explain why the difference(s) between the prior art and the claimed invention would have been obvious to one skilled in the art (Examination Guidelines for Determining Obviousness Under 35 U.S.C. 103 in View of the Supreme Court Decision in *KSR international Co.* v. *Teleflex Inc.*, published in Federal Register, Vol. 72, No. 195 October 10, 2007). As such, if elements from a claim are not disclosed by the combination of cited references and no valid reasoning is provided why the missing elements would be obvious, this provides a strong basis for why a claim should not be rejected based on obviousness.

In the Final Office Action dated June 4, 2007, with regard to claim 10, the Examiner alleges that Gerhauser discloses "A wireless network node for providing transit of data with other wireless network nodes in a wireless network, the wireless network node comprising: at least one transit antenna to provide data transmission between at least one other wireless network node in the wireless network and the wireless network node; wherein the at least one transit antenna are available to establish one or more transit links; an auxiliary transit antenna port to which an auxiliary transit antenna can be coupled", but fails to disclose the remainder of the limitations of the claim.

The Examiner alleges that Gerhauser discloses an auxiliary transit antenna port in the form of a switching device for connecting to the second antenna disclosed at page 3, line 21 (of the translated copy of the reference). Applicant submits that there is no indication that the second antenna is an auxiliary antenna and the switching device is a port of the second antenna. Gerhauser discloses a fixed arrangement of two antennas in which either antenna can be selected via the switching device, not a removable auxiliary transit antenna, that may or may not be attached to an auxiliary transit antenna port, as recited in current claim 10. Therefore, Gerhauser does not suggest or disclose the limitation of an auxiliary transit antenna.

It is alleged by the Examiner that Pennock *et al.* discloses "an antenna detector adapted to detect whether or not an auxiliary antenna is coupled to the auxiliary antenna port; wherein upon detection that the auxiliary antenna is not coupled to the auxiliary antenna port, the wireless network node uses only the at least one antenna for communications" and "detecting that the auxiliary antenna is coupled to the auxiliary antenna port".

Applicant submits that claim 10 specifically recites that the auxiliary antenna port is an "auxiliary transit antenna port" and the auxiliary antenna is an "auxiliary transit antenna". In Pennock *et al.*, it is readily apparent that the switching system that is disclosed forms part of a "portable radiotelephone" (see the Abstract). This, for example, is analogous to a mobile device 9 in Figure 1 of the present application. The only type of link disclosed for use by the mobile terminal of Pennock *et al.* is an access link. An access link is a link between a network node and a mobile station. In Applicant's disclosure and claims, "transit" refers to communications that occur between pairs of wireless network nodes in a wireless network. There is no suggestion or disclosure of such transit links in Pennock *et al.* As the Examiner has intentionally excluded the term "transit" when alleging that Pennock *et al.* discloses the limitation, it appears the Examiner may recognize that Pennock *et al.* does not disclose an "auxiliary transit antenna port" or an "auxiliary transit antenna".

In the Final Office Action the Examiner concedes that Pennock *et al.* fails to disclose "wherein upon detection that the auxiliary antenna is coupled to the auxiliary antenna port, adding the auxiliary antenna to a list of available antennas adapted for at least one of transmitting and receiving wireless signals so that the auxiliary antenna can be included or ignored as appropriate for at least one of transmitting and receiving wireless signals through the auxiliary antenna coupled to the auxiliary transit antenna port". It is alleged that Buchholz *et al.* discloses this limitation. The Examiner specifically alleges that Buchholz *et al.* discloses an "auxiliary transit antenna port" and an "auxiliary transit antenna".

In response to the Final Office Action, Applicant submitted in the Office Action response filed on September 4, 2007 that there is no disclosure or suggestion in Buchholz *et al.* of a transit antenna and a transit antenna port, let alone an auxiliary transit antenna and an auxiliary transit antenna port, as recited in the claims of the present application. Buchholz *et al.* deals with access antennas, as defined above, not transit antennas.

On page 2 of the Advisory Action dated October 16, 2007 that issued in response to the Final Office Action response submitted on September 4, 2007, the Examiner states that:

> "Buchholz discloses transmission of broadcast packets between a control module 22 and user modules 20, and further discloses a control module 22 and a user module 20 that each have a plurality of antennas A1-A6 (see abstract and col. 3, lines 25-39). The control module of Buchholz used for the broadcast packets to users have a plurality of antennas, therefore, Buchholz discloses a transit antenna and not an access antenna as argued by the Applicant".

Applicant respectfully submits that the Examiner has misinterpreted the meaning of transit and access communications. Applicant submits that control module 22 is an access node with respect to packet network 28 (Figure 1 of Buchholz *et al*). Therefore, links between control module 22 and respective user modules 20 are access links. Transit links would be links between the respective UMs 20. There is no suggestion or disclosure of transit links, that is links between the respective UMs, in Buchholz *et al.* As such, Buchholz does not disclose the use of transit antennas.

In response to the Final Office Action, Applicant submitted in the Office Action response filed on September 4, 2007 that Buchholz *et al.* discloses constructing a list of "active antennas". The active antennas are disclosed as antennas "which are in radio communication with at least one of said plurality of UMs (user modules)" (col. 5, lines 33-34). Claim 10 recites "upon detection that the auxiliary transit antenna is coupled to the auxiliary transit antenna port, adding the auxiliary transit antenna to a list of available antennas". Applicant submits that there is a difference between the term "available", as recited in the claims of the present application, and the term "active", as disclosed in Buchholz *et al.*. An antenna may be "available" for use, but not necessarily "active" at any given moment in time. Buchholz *et al.* discloses a plurality of antennas for each type of device, UMs or CM (central module). For example, Buchholz *et al.* discloses six antennas that provide a total of 360 degrees of coverage, some or all of which are active/inactive (col. 3, lines 40-45 in Buchholz *et al.*). Applicant submits that the inactive antennas in Buchholz *et al.* are available, but not included in any list, as they are not active. There is no suggestion or disclosure in Buchholz *et al.* that any of the antennas associated with either of the UMs or CMs are auxiliary antennas. Applicant submits that Buchholz *et al.* does not disclose "adding the auxiliary transit antenna to a list of available antennas", as Buchholz *et al.* is only concerned with active antennas.

On page 2 of the Advisory Action that issued in response to the Final Office Action response submitted on September 4, 2007, the Examiner states that:

> "Applicant's argument that Buchholz discloses active and not available antennas is not persuasive for the reason that Buchholz discloses generating a list of antennas which support RF communications with UM, list of CM antennas that service multicast group of users (col. 2 lines 50-60). The generated group of antennas as disclosed by Buchholz implies available antennas that can be used by CM, therefore Buchholz discloses available antennas."

When considering the entire limitation as a whole, that is "wherein upon detection that the auxiliary transit antenna is coupled to the auxiliary transit antenna port, adding the auxiliary transit antenna to a list of available antennas adapted for at least one of transmitting and receiving wireless signals so that the auxiliary transit antenna can be included or ignored as appropriate for at least one of transmitting and receiving wireless signals through the auxiliary transit antenna coupled to the auxiliary transit antenna port", it is in response to the detection of the auxiliary transit antenna being coupled to the transit antenna port that the auxiliary transit antenna is added to the list. Since Buchholz *et al.* does not suggest or disclose the use of auxiliary transit antennas, or the use of detecting if auxiliary transit antennas are coupled to an auxiliary transit antenna port, Buchholz *et al.* does not suggest or disclose adding an auxiliary transit antenna to a list of available antennas in response to detection that the auxiliary transit antenna is coupled to the auxiliary transit antenna port. Buchholz *et al.* simply discloses the control module (CM) generating "a list of antennas which are currently supporting RF communications with at least one UM". Furthermore, since it is disclosed that the CM generates the list of available antennas, and as discussed above CM antennas are for access links, not transit links, Buchholz *et al.* may be considered at best to disclose generating a list of access antennas. However, even if this were true, the list is not generated in response to the detection of any type of auxiliary antenna being connected to an auxiliary antenna port as recited in claim 10.

On page 2 of the Advisory Action dated October 16, 2007, the Examiner states that:

> "Buchholz discloses (see fig. 2) an embodiment of a CM 22 or UM 20, and selecting one antenna at a time to communicate with (col. 2 lines 63-65, and col. 3 lines 43-51), if one antenna is selected for the communication then the rest of the antennas are auxiliary (secondary) antennas, therefore Buchholz discloses applicant's limitation of an auxiliary transit antenna".

The Examiner appears to be alleging that simply because there are unused antennas, these unused antennas are auxiliary antennas. The unused antennas in the particular embodiment disclosed in Buchholz *et al.* and cited by the Examiner are disclosed as antennas that are part of the six antennas permanently attached to the CM/UM. There is no suggestion or disclosure in Buchholz *et al.* that any of the used or unused antennas are auxiliary antennas, i.e. antennas in addition to antennas permanently part of the CM/UM and which may be coupled to an auxiliary antenna port. The language of claim 10 clearly recites that there is "at least one transit antenna" and "an auxiliary transit antenna port to which an auxiliary transit antenna can be coupled" (emphasis added). Therefore, the auxiliary transit antenna is to be considered a connectable/detachable antenna that is in addition to the transit antenna permanently attached to the wireless network node. Applicant respectfully submits that the Examiner has interpreted the expression "auxiliary" too broadly in view of the specification of the present application as a whole, and particularly in view of the language of the claim 10. Applicant maintains that Buchholz *et al.* does not disclose "wherein upon detection that the auxiliary transit antenna is coupled to the auxiliary transit antenna port, adding the auxiliary transit antenna to a list of available antennas adapted for at least one of transmitting and receiving wireless signals so that the auxiliary transit antenna can be included or ignored as appropriate for at least one of transmitting and receiving wireless signals through the auxiliary transit antenna coupled to the auxiliary transit antenna port", as Buchholz *et al.* does not suggest or disclose the use auxiliary transit antennas, or more generally, the use of any type of auxiliary antenna at all.

Applicant respectfully submits that Buchholz *et al.* does not suggest or disclose "wherein upon detection that the auxiliary transit antenna is coupled to the auxiliary transit antenna port, adding the auxiliary transit antenna to a list of available antennas", because Buchholz *et al.* 1) does not disclose the use of transit antennas, 2) does not disclose the use of auxiliary antennas of any kind, and 3) does not disclose adding the auxiliary transit antenna to a list of available antennas adapted for at least one of transmitting and receiving wireless signals upon detection that the auxiliary transit antenna is coupled to the auxiliary transit antenna port.

For at least the reasons discussed above, Applicant respectfully submits that Gerbauser, Pennock *et al.* and Buchholz *et al.* do not teach all the limitations recited in claim 10 as alleged by the Examiner. Furthermore, the Examiner has failed to provide a reasonable explanation of why the missing elements would be considered obvious. Without all the limitations of claim 10 being disclosed by the three references and a reasonable explanation of why the missing elements would be considered obvious, Applicant submits that claim 10 is non-obvious and patentably distinguishes over the cited references.

Reason to Combine References

Once the scope of the prior art is ascertained, the content of the prior art must be properly combined. An obviousness inquiry requires review of a number of factors, including the background knowledge possessed by a person having ordinary skill in the art, to determine whether there was an apparent reason to combine the elements of the prior art in the fashion claimed by the present invention. For the Patent Office to combine references in support of an obviousness rejection, the Patent Office must identify a reason why a person of ordinary skill in the art would have combined the references. Id. at 15. Even if the Patent Office is able to articulate and support a suggestion to combine the references, it is impermissible to pick and choose elements from the prior art while using the application as a template.

The Examiner states the reason for undertaking a combination of Gerhauser and Pennock *et al.* as proposed is "for the purpose of detecting the presence of an auxiliary antenna for the purpose of generating a control signal in response" (page 4 of the Final Office Action issued June 4, 2007). The Examiner states the reason for further combining Gerhauser and Pennock *et al.* with Buchholz *et al.* as proposed is "for the purpose of maintaining a registration list of active antennas used in transmission" (page 5 of the Final Office Action issued June 4, 2007).

Applicant submits that the reasons provided by the Examiner do not suggest a desirability for the claimed invention that would serve as a sufficient reason for one skilled in the art to combine the references, such that they would arrive at the claimed invention, especially in view o the following.

Applicant submits that Gerhauser teaches away from Pennock *et al.* and from the present invention. Gerhauser discloses a network in which at least one network node has at least one first antenna and at least one second antenna which are always present in the network node. Therefore, Gerhauser has a fixed arrangement of two antennas, not a separate, removable external antenna as disclosed in Pennock *et al.* or a removable auxiliary transit antenna, that may or may not be attached to an auxiliary transit antenna port, as recited in current claim 10. As such, there would be no reason to have a detector in Gerhauser to detect if an auxiliary transit antenna was coupled to an auxiliary transit antenna port. For the same reason, Buchholz *et al.* can be said to teach away from the present invention, as Buchholz *et al.* discloses a set of antennas, specifically six antennas that are permanently coupled to the command module. There is no suggestion or disclosure of a separate, removable external antenna as disclosed in Pennock *et al.* or a removable auxiliary transit antenna, that may or may not be attached to an auxiliary transit antenna port, as recited in claim 10. Applicant submits that one skilled in the art would not look to references that do not include the limitation of an auxiliary antenna, when the auxiliary antenna is a fundamental aspect of the invention.

Applicant submits that Pennock *et al.* teaches away from the present invention. Pennock *et al.* discloses the portable radiotelephone having an internal antenna 105 and an external antenna 107. When the external antenna 107 is detected as being connected to portable radiotelephone 103 by antenna detector circuit 113, switch 115 switches the active transmission path between the internal and the external antenna transmission paths. Pennock *et al.* does not have the option of ignoring the external antenna 107 when it is connected, as recited in present claim 10. If the second antenna 107 is detected by the antenna detector circuit 113, switch 115 enables the use and the second antenna 107, which consequently disables use of the first antenna 105. In claim 10 of the present application, upon detection of the auxiliary transit antenna, the auxiliary transit antenna is added to a list of available antennas so that the auxiliary transit antenna can be included or ignored as appropriate for at least one of transmitting and receiving wireless signals.

As Gerhauser and Buchholz *et al.* each teach away from Pennock *et al.* and the subject matter claimed in the present application, and Pennock *et al.* teaches away from the subject matter claimed in the present application, Applicant submits that there is no suggestion of a desirability of the claimed invention in any of the references that would serve as a reason for one skilled in the art to combine the references, as required by the Supreme Court's recent decision in ***KSR***.

It is respectfully submitted that the 35 U.S.C. §103(a) rejection is deficient for its failure to comply with the U.S. Supreme Court's requirements recently articulated in ***KSR***.

For at least the reasons discussed above, Applicant submits that claim 10 patentably distinguishes over the cited references of Gerhauser, Pennock *et al.* and Buchholz *et al.*. It is respectfully submitted that the Examiner has erred in rejecting claim 10 based on obviousness.

Claims 11, 13, 16 and 19 to 21 are dependent upon claim 10, either directly or indirectly and therefore Applicant submits that these claims similarly distinguish over the cited prior art. It is respectfully submitted that the Examiner has also erred in rejecting claims 11, 13, 16 and 19 to 21 based on obviousness.

Rejection Under 35 U.S.C. 103(a) over Gerhauser in view of Pennock *et al.*, Buchholz *et al.* and further in view of Kamphuis *et al.*

Claims 12 and 15

The Examiner has stated that claims 12 and 15 are unpatentable under 35 U.S.C. 103(a) over Gerhauser in view of Pennock *et al.* and Buchholz *et al.* and further in view of International Publication No. WO 01/52357 (Kamphuis *et al.*).

Claims 12 and 15 each indirectly depend upon claim 10. Claims 12 and 15 therefore lack the same elements as are lacking in claim 10. Applicant submits that Kamphuis *et al.* do not disclose the missing elements. For at least this reason, dependent claims 12 and 15 also patentably distinguish over the combination of cited art.

It is respectfully submitted that the Examiner has also erred in rejecting claims 12 and 15 based on obviousness.

Rejection Under 35 U.S.C. 103(a) over Gerhauser in view of Pennock *et al.* and Buchholz *et al.*

Claim 14

The Examiner has stated that claim 14 is unpatentable under 35 U.S.C. 103(a) over Gerhauser in view of Pennock *et al.* and Buchholz *et al.*.

Claim 14 indirectly depends upon claim 10. Claim 14 therefore lacks the same elements as are lacking in claim 10. For at least this reason, dependent claim 14 also patentably distinguishes over the combination of cited art.

It is respectfully submitted that the Examiner has also erred in rejecting claim 14 based on obviousness.

Rejection Under 35 U.S.C. 103(a) over Gerhauser in view of Pennock *et al.*, Buchholz *et al.* and further in view of Difonzo *et al.*

Claims 17 to 25

Claims 17 to 25 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Gerhauser in view of Pennock *et al.* and Buchholz *et al.* and further in view of International Publication No. WO 03/017591 (Difonzo *et al.*).

Claims 17 to 25 all indirectly depend upon claim 10. Claims 17 to 25 therefore lack the same elements as are lacking in claim 10. Applicant submits that Difonzo *et al.* do not disclose the missing elements. For at least this reason, dependent claims 7 to 25 also patentably distinguish over the combination of cited art.

Provided below are a few further comments on some of the dependent claims.

With particular reference to the objections set out in paragraph 8 of the Final Office Action date June 4, 2007 (see page 9-10) which concern claims 17 and 18, the Examiner indicates that "the combination fails to specifically disclose further comprising at least one access antenna to permit data transmission both to and from wireless mobile terminals located proximate to wireless network node". Applicant respectfully submits that what Pennock *et al.* does disclose is only the inclusion of such an access antenna. As discussed above, the "wireless network node" of Pennock *et al.* is a portable radiotelephone, and it only has access capability and as such has an access antenna. What is missing from Pennock *et al.* is any transit link functionality as Pennock *et al.* is only directed to access link functionality. The Examiner also argues that Difonzo *et al.* (WO 03/017591) teaches the inclusion of a transit link radio coupled to at least one transit antenna and the auxiliary transit antenna. However with respect, reviewing Difonzo *et al.*, there is no auxiliary transit link antenna. Difonzo *et al.* teaches the inclusion of at least one dynamically directionally controllable communications link, but there is no discussion of this being provided through an antenna that is an auxiliary antenna. Rather, this is simply another one of the antennas that is always present on the device.

Regarding claims 20, 21, 24 and 25, the Examiner points to Difonzo *et al.* as teaching the inclusion of an auxiliary transit antenna having either higher gain or higher data rate, etc. However, as discussed above there is no concept of an "auxiliary transit antenna" in Difonzo *et al.* Rather, there is simply a set of antennas that all operate in the same manner. There is no disclosure of the fact that some of the antennas are regular transit antennas, and one or more antenna(s) is an auxiliary antenna(s) that is removable and might have either greater gain or higher data rate, etc. than the other antennas.

Regarding claims 22 and 23, the references to a "directional-mount" that the Examiner has found in Difonzo *et al.* in fact refers to steerable beams, these beams being steered using a beam forming array, as opposed to a physical structure capable of movement for mounting the antennas, which is intended in the present claims. It is respectfully submitted that it is clearly not the same to employ a directional-mount, as recited in the claims, as it is to employ steerable radiation beams. See page 6, line 21 of Difonzo *et al.*

It is respectfully submitted that the Examiner has also erred in rejecting claims 17 to 25 based on obviousness.

Rejection Under 35 U.S.C. 103(a) over Pennock *et al.* in view of Buchholz *et al.*

Claims 26 to 31

The Examiner has rejected claims 26 to 31 under 35 U.S.C. 103(a) as being unpatentable over Pennock *et al.* in view of Buchholz *et al.* On page 2 of the Final Office Action dated June 4, 2007 the Examiner states that the arguments from the previous response have been rendered moot in view of the new grounds of rejection. However, the Examiner has maintained the same rejection as in the previous Office Action dated October 17, 2006 for claims 26 to 31. As the arguments for claims 26 to 31 from the Office Action response dated March 14, 2007 were not rendered moot by any new rejection in the Final Office Action as alleged by the Examiner, the arguments submitted below are substantially the same as those submitted in the Final Office Action response and the Office Action response submitted on March 14, 2007.

To begin, Pennock *et al.* does not disclose a method of operating a wireless network node having an auxiliary transit antenna port, or determining whether or not there is an auxiliary transit antenna coupled to the transit antenna port. As discussed above, Pennock *et al.* is used for access link functionality, not transit link functionality. The Examiner concedes that Pennock *et al.* does not disclose adding the auxiliary transit antenna to a list of active antennas adapted for at least one of transmitting and receiving wireless signals so that the auxiliary transit antenna can be included or ignored as appropriate for at least one of transmitting and receiving wireless signals through the auxiliary transit antenna coupled to the auxiliary transit antenna port, or "upon determining that an auxiliary transit antenna is not coupled to the auxiliary transit antenna port, removing the auxiliary transit antenna from a list of active antennas so that the auxiliary transit antenna will not be used".

The Examiner argues that Buchholz *et al.* discloses this subject matter. Applicant submits that, as discussed in detail above, Buchholz *et al.* does not disclose upon detecting that an auxiliary transit antenna is connected to an auxiliary antenna port, adding an auxiliary transit antenna to a list of available antennas so that the auxiliary transit antenna can be included or ignored as appropriate for at least one of transmitting and receiving wireless signals.

Furthermore, as discussed above with reference to the rejection of claim 10, Applicant submits that there is no suggestion of the desirability of the claimed invention in the two cited references that would serve as a reason for one skilled in the art to combine the references, as required by the Supreme Court's recent decision in ***KSR***.

In view of the fact that 1) neither Pennock *et al.* nor Buchholz *et al.* teach the limitations suggested by the Examiner, 2) there is no reasonable explanation of why the missing elements would be obvious and 3) there is no reasonable explanation of the desirability of the claimed invention, it is respectfully submitted that the combination of these two references does not render claim 26 obvious.

Claims 27 and 28 depend upon claim 26 and are allowable for the same reasons. Claim 29 is similar in scope to claim 26, but is a device claim directed to a controller, and as such similar comments apply. Claims 30 and 31 depend upon claim 29 and are likewise allowable.

It is respectfully submitted that the Examiner has also erred in rejecting claims 26 to 31 based on obviousness.

For the foregoing reasons, it is submitted that all of the Examiner's rejections are erroneous, and reversal of his decision is respectfully requested.

Respectfully submitted,

DAVID STEER

By
Allan Brett
Reg. No. 40,476

Smart & Biggar
P.O. Box 2999, Station D
900-55 Metcalfe Street
Ottawa, Ontario K1P 5Y6

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RAD:MSS:mcg

Claims Appendix:

1. (Withdrawn) A wireless network node for providing transit of data with other wireless network nodes in a wireless network, the wireless network node comprising:

at least one transit antenna to provide data transmission between at least one other wireless network node in the wireless network and the wireless network node;

an auxiliary transit antenna having a greater gain than the at least one transit antenna to provide at least one of:

a) data transmission between wireless network nodes separated by a distance greater than that permitting reliable data transmission to other wireless network nodes using the at least one transit antenna; and

b) higher rate transmission between wireless network nodes than can be achieved using the at least one transit antenna.

2. (Withdrawn) The wireless network node of claim 1 further comprising at least one access antenna to permit data transmission both to and from wireless mobile terminals located proximate the wireless network node.

3. (Withdrawn) The wireless network node of claim 2, wherein the at least one transit antenna and the at least one access antenna are operable in separate radio bands.

4. (Withdrawn) The wireless network node of claim 3, wherein the auxiliary transit

antenna is operable in the same radio band as the at least one transit antenna.

5. (Withdrawn) The wireless network node of claim 3, wherein the auxiliary transit antenna is operable in a different radio band than the at least one transit antenna.

6. (Withdrawn) The wireless network node of claim 1 further comprising a transit link radio coupled to the at least one transit antenna and the auxiliary transit antenna for providing data communication between the wireless network node and other wireless network nodes.

7. (Withdrawn) The wireless network node of claim 2 further comprising:

a transit link radio coupled to the at least one transit antenna and the auxiliary transit antenna for providing data communication between the wireless network node and other wireless network nodes;

an access link radio coupled to the at least one access antenna for providing communication between the wireless network node and mobile devices proximate the wireless network node; and

a controller unit coupled to both the transit link radio and the access link radio for coupling data transmissions from a mobile device proximate the wireless network node to other wireless network nodes.

8. (Withdrawn) The wireless network node of claim 1, wherein the auxiliary transit

antenna is aimed so signals therefrom are transmitted to another specific wireless network node.

9. (Withdrawn) The wireless network node of claim 8, wherein the another specific wireless network node is located at a distance from the wireless network node greater than a distance permitting reliable transmission of data using the at least one transit antenna.

10. (Previously presented) A wireless network node for providing transit of data with other wireless network nodes in a wireless network, the wireless network node comprising:

at least one transit antenna to provide data transmission between at least one other wireless network node in the wireless network and the wireless network node;

an auxiliary transit antenna port to which an auxiliary transit antenna can be coupled; and

an antenna detector adapted to detect whether or not an auxiliary transit antenna is coupled to the auxiliary transit antenna port;

wherein the at least one transit antenna are available to establish one or more transit links;

wherein upon detection that the auxiliary transit antenna is not coupled to the auxiliary transit antenna port, the wireless network node uses only the at least one transit antenna for communications;

wherein upon detection that the auxiliary transit antenna is coupled to the auxiliary transit antenna port, adding the auxiliary transit antenna to a list of available antennas adapted for at least one of transmitting and receiving wireless signals so that the auxiliary transit antenna can be included or ignored as appropriate for at least one of transmitting and receiving wireless signals through the auxiliary transit antenna coupled to the auxiliary transit antenna port.

11. (Previously presented) The wireless network node of claim 10 wherein the antenna detector is adapted to automatically detect whether or not an auxiliary transit antenna is coupled to the auxiliary transit antenna port.

12. (Previously presented) The wireless network node of claim 11, wherein the antenna detector measures a standing wave ratio (SWR) for use in a determination of whether or not an auxiliary transit antenna is or is not coupled to the auxiliary transit antenna port.

13. (Previously presented) The wireless network node of claim 11, wherein the antenna detector measures a signal received through the auxiliary transit antenna port for use in a determination of whether or not an auxiliary transit antenna is or is not coupled to the auxiliary transit antenna port.

14. (Previously presented) The wireless network node of claim 11, wherein the antenna detector comprises a metal contact that rests adjacent to the auxiliary transit

antenna port when an auxiliary transit antenna is not inserted into the auxiliary transit antenna port, and when an auxiliary transit antenna is inserted into the auxiliary transit antenna port the metal contact is bridged to a ground contact of the auxiliary transit antenna port, the antenna detector further comprising an interface circuit to which the metal contact is coupled, the interface circuit outputting a signal that is indicative of the presence or absence of an auxiliary transit antenna in the auxiliary transit antenna port.

15. (Previously presented) The wireless network node of claim 11, wherein the antenna detector comprises a coupler connected in series with the auxiliary transit antenna port, forward and reverse power detectors connected to the coupler, and a Standing Wave Ratio (SWR) detector and interface circuit connected to the forward and reverse power detectors,

wherein in operation power from the auxiliary transit antenna port is coupled through the coupler and measured by both the forward and reverse power detectors, and the SWR detector and interface circuit compare outputs of the forward and reverse power detectors in order to determine whether or not an auxiliary transit antenna is coupled to the auxiliary transit antenna port.

16. (Previously presented) The wireless network node of claim 10 in combination with an auxiliary transit antenna coupled to the auxiliary transit antenna port.

17. (Original) The wireless network node of claim 16, further comprising at least one access antenna to permit data transmission both to and from wireless mobile terminals

located proximate the wireless network node.

18. (Original) The wireless network node of claim 17, further comprising:

a transit link radio coupled to the at least one transit antenna and the auxiliary transit antenna for providing data communication between the wireless network node and other wireless network nodes;

an access link radio coupled to the at least one access antenna for providing communication between the wireless network node and mobile devices proximate the wireless network node; and

a controller unit coupled to both the transit link radio and the access link radio for coupling data transmissions from a mobile device proximate the wireless network node to other wireless network nodes.

19. (Previously presented) The wireless network node of claim 16, wherein the auxiliary transit antenna is aimed so signals therefrom are transmitted to another specific wireless network node.

20. (Original) The wireless network node of claim 19, wherein the another specific wireless network node is located at a distance from the wireless network node greater than a distance permitting reliable transmission of data using the at least one transit antenna.

21. (Previously presented) The wireless network node of claim 16, wherein the auxiliary transit antenna has a gain greater than that of the at least one transit antenna.

22. (Previously presented) The wireless network node of claim 16 further comprising a directional-mount connected between the auxiliary transit antenna and auxiliary transit antenna port of the wireless network node.

23. (Previously presented) The wireless network node of claim 22, wherein the directional-mount is adjustable in order to permit an optimal alignment of the auxiliary transit antenna.

24. (Previously presented) The wireless network node of claim 16, wherein the auxiliary transit antenna provides the use of a substantially higher data rate than that provided by the at least one transit antenna.

25. (Previously presented) The wireless network node of claim 16, wherein the auxiliary transit antenna provides substantially better interference suppression than that provides by the at least one transit antenna.

26. (Previously presented) A method of operating a wireless network node having an auxiliary transit antenna port, the method comprising:

determining whether or not an auxiliary transit antenna is coupled to the auxiliary transit antenna port; and upon determining that an auxiliary transit antenna is coupled to the auxiliary transit antenna port, adding the auxiliary transit antenna to a list of available antennas adapted for at least one of transmitting and receiving wireless signals so that the auxiliary transit antenna can be included or ignored as appropriate for at least one of transmitting and receiving wireless signals through the auxiliary transit antenna coupled to the auxiliary transit antenna port;

upon determining that an auxiliary transit antenna is not coupled to the auxiliary transit antenna port, removing the auxiliary transit antenna from a list of active antennas so that the auxiliary transit antenna will not be used.

27. (Previously presented) The method according to claim 26, further comprising, upon determining that an auxiliary transit antenna is coupled to the auxiliary transit antenna port, automatically aligning a beam of the auxiliary transit antenna with another wireless network node.

28. (Previously presented) The method according to claim 27, wherein the beam of the auxiliary transit antenna is aligned such that at least one of a strongest possible signal level is received and a lowest packet error rate is achieved on a resulting link.

29. (Previously presented) A controller for a wireless network node having an auxiliary transit antenna port, the controller having a function of:

determining whether or not an auxiliary transit antenna is coupled to the auxiliary transit antenna port;

upon determining that an auxiliary transit antenna is coupled to the auxiliary transit antenna port, adding the auxiliary transit antenna to a list of available antennas adapted for one of transmitting and receiving wireless signals so that the auxiliary transit antenna can be included or ignored as appropriate for one of transmitting and receiving wireless signals through the auxiliary transit antenna coupled to the auxiliary transit antenna port; and

upon determining that an auxiliary transit antenna is not coupled to the auxiliary transit antenna port, removing the auxiliary transit antenna from a list of active antennas so that the auxiliary transit antenna will not be used.

30. (Previously presented) The controller of claim 29, further comprising a function of, upon determining that an auxiliary transit antenna is coupled to the auxiliary transit antenna port, coordinating an automatic alignment of a beam of the auxiliary transit antenna with another wireless network node.

31. (Previously presented) The controller of claim 30, wherein the beam of the auxiliary transit antenna is aligned such that at least one of a strongest possible signal level is received and a lowest packet error rate is achieved on a resulting link.

32. (Withdrawn) A wireless LAN network comprising in combination: a plurality of wireless network nodes, each wireless network node including at least one transit antenna, and at least one of the plurality of wireless network nodes additionally including

an auxiliary antenna having greater gain than the at least one transit antenna also included on the wireless network node;

wherein a plurality of transit links is established between the transit antennas of the wireless network nodes;

at least one additional transit link is established between two wireless network nodes separated by a distance greater than reliably possible between two transit antennas, each additional transit link employing at least one auxiliary antenna.

33. (Withdrawn) The wireless LAN network of claim 32 further comprising at least one network access node for providing network access communication between the wireless LAN and another network consisting of at least one of an internet, an intranet, a Public Switched Telephone Network (PSTN) and another communication network.

34. (Withdrawn) The wireless LAN network of claim 32, wherein at least one of the wireless network nodes additionally including the auxiliary antenna has a wireless transport communication link to the network access node using its auxiliary antenna from a distance greater than is reliably possible with its at least one transit antenna.

35. (Withdrawn) The wireless LAN network of claim 32, wherein at least one of the wireless network nodes further comprise an access link radio and at least one access antenna coupled to the access link radio;

whereby in operation these wireless network nodes are capable of providing wireless access to communication services to subscribers with suitable mobile devices.

36. (Withdrawn) The wireless LAN network of claim 32, wherein, for each of the wireless network nodes additionally including the auxiliary antenna, a data rate provided through use of the auxiliary antenna is higher than a data rate provided through the use of the at least one transit antenna.

37. (Withdrawn) The wireless LAN network of claim 32, wherein, for each of the wireless network nodes additionally including the auxiliary antenna, a data reliability provided through use of the auxiliary antenna is higher than a data reliability provided through the use of the at least one transit antenna.

38. (Withdrawn) The wireless LAN network of claim 32, wherein, for each of the wireless network nodes additionally including the auxiliary antenna, a level of interference suppression provided through use of the auxiliary antenna is higher than a level of interference suppression provided through the use of the at least one transit antenna.

Evidence Appendix:

None.

Related Proceedings Appendix

None.